CLAIMS

What is claimed is:

5   1.   A method of qualifying a process tool
comprising steps of:
      (a) finding a plurality of pre-scan defect locations
on a surface of a semiconductor wafer;
      (b) subjecting the semiconductor wafer to processing
10   by a process tool;
      (c) finding a plurality of post-scan defect
locations on the surface of the semiconductor wafer; and
      (d) calculating defect locations added by the
process tool from the pre-scan defect locations and the
15   post-scan defect locations.

      2.   The method of Claim 1 further comprising a
step of displaying a map of the defect locations added by
the process tool.
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      3.   The method of Claim 1 further comprising a
step of displaying a scatter plot of a point
representative of a total number of added defects versus
a corresponding semiconductor wafer.
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      4.   The method of Claim 3 further comprising a
step of displaying a selected failure threshold on the
scatter plot.

5. The method of Claim 3 further comprising a step of selecting the point on the scatter plot to initiate a display of one of a pre-test wafer map, a post-test wafer map, and an added defect map of the

5   corresponding semiconductor wafer.

6. The method of Claim 5 further comprising a step of associating a spatial signature of the added defects from the added defect map with a process tool

10 malfunction.

7. The method of Claim 1 wherein step (d) comprises comparing a distance between a first point corresponding to a defect location in a first list of

15 pre-test defect locations and a second point corresponding to a defect location in a second list of post-test defect locations with a registration tolerance.

8. The method of Claim 7 wherein the defect

20 location in the second list corresponding to the second point is marked as a non-adder if the distance is less than the registration tolerance.

9. The method of Claim 8 wherein the first

25 list and the second list are sorted by X-coordinate.

10. The method of Claim 9 wherein defect locations in the first list and the second list having

identical X-coordinates are further sorted by Y-coordinate.

11. A computer program product for qualifying a process tool comprising:

a medium for embodying a computer program for input to a computer; and

a computer program embodied in the medium for causing the computer to perform steps of:

(a) finding a plurality of pre-scan defect locations on a surface of a semiconductor wafer;

(b) subjecting the semiconductor wafer to processing by the process tool;

(c) finding a plurality of post-scan defect locations on the surface of the semiconductor wafer; and

(d) calculating a plurality of defect locations added by the process tool from the pre-scan defect locations and the post-scan defect locations.

12. The computer program product of Claim 7 further comprising a step of displaying a map of the defect locations added by the process tool.

13. The computer program product of Claim 7 further comprising a step of displaying a scatter plot of a point representative of a total number of added defects versus a corresponding semiconductor wafer.

14.   The computer program product of Claim 9 further comprising a step of displaying a selected failure threshold on the scatter plot.

5   15.   The computer program product of Claim 9 further comprising a step of selecting the point on the scatter plot to initiate a display of one of a pre-test wafer map, a post-test wafer map, and an added defect map of the corresponding semiconductor wafer.

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16.   The computer program product of Claim 11 further comprising a step of associating a spatial signature of the added defects from the added defect map with a process tool malfunction.

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17.   The computer program product of Claim 11 wherein step (d) comprises comparing a distance between a first point corresponding to a defect location in a first list of pre-test defect locations and a second point

20   corresponding to a defect location in a second list of post-test defect locations with a registration tolerance.

18.   The computer program product of Claim 17 wherein the defect location in the second list

25   corresponding to the second point is marked as a non-adder if the distance is less than the registration tolerance.

19. The computer program product of Claim 18 wherein the first list and the second list are sorted by X-coordinate.

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20. The computer program product of Claim 19 wherein defect locations in the first list and the second list having identical X-coordinates are further sorted by Y-coordinate.

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